

R E M A R K S

This is in response to the Office Action that was mailed on March 12, 2003. New claim 3 is based on such disclosure as that appearing in the first paragraph on page 6 of the specification. New claim 4 is based on such disclosure as that appearing in the paragraph bridging pages 7-8 of the specification. New claim 5 is based on such disclosure as that appearing in the last full paragraph on page 13 of the specification. New claim 6 is based on such disclosure as that appearing in lines 6-19 on page 13 of the specification. New claim 7 is based on such disclosure as that appearing in lines 15-22 on page 15 of the specification. No new matter has been introduced. Claims 1-7 are in the case.

The objection to the specification is obviated by amendment.

Applicants respectfully request reconsideration of the objection to claim 1. The terminology in question is virtually identical to that found by the PTO to be acceptable in US 5,837,774 (Tarumi). The paragraph bridging pages 7-8 of the specification elucidates the fact that the claim language in question refers to hydrosilyl groups. It is noted that -- as is evident for persons skilled in the art -- the silicon atom does have four bonds as the Examiner points out, and that $\text{HSi}\equiv$ includes $\text{H}_2\text{Si}\equiv$; that is, one of the three bonds remaining in the hydrosilyl moiety can be bonded to a(n additional) hydrogen.

Claims 1 and 2 were rejected under 35 U.S.C. §112 as being unpatentable over US 5,837,774 (Tarumi) in view of US 5,591,797 (Barthel). The rejection is respectfully traversed.

An object of the present invention is to provide a curable fluoropolyether base rubber composition that has improved compression set as well as heat resistance, chemical resistance, solvent resistance, water repellency, oil repellency, and weather resistance. By using a silica filler that has a specific surface area (at least $100 \text{ m}^2/\text{g}$) and vinyl content (1×10^{-3} to $2 \times 10^{-2} \text{ mol}/100 \text{ g}$), which silica has been surface hydrophobized, those skilled in the art are enabled by the present invention to obtain cured fluoropolyether rubber products having improved compression set as well as heat resistance, chemical resistance, solvent resistance, water repellency, oil repellency, and weather resistance.

As taught in the present specification, the treated silica should have a vinyl group content within the precise range of 1×10^{-3} to $2 \times 10^{-2} \text{ mol}/100 \text{ g}$, so that the silica can serve to improve composition set without detracting from mechanical properties. Silica with a vinyl content of less than $1 \times 10^{-3} \text{ mol}/100 \text{ g}$ fails to achieve the desired compression-set-improving effect. Silica with a vinyl content of more than $2 \times 10^{-2} \text{ mol}/100 \text{ g}$ acts to lower strength and elongation, substantially detracting from the desired mechanical properties. This feature of the invention is demonstrated in the Examples and Comparative Examples herein.

Tarumi fails to teach or suggest use of the specific silica filler required by the present invention in curable fluoropolyether rubber compositions.

Barthel discloses transition metal-containing hydrophobic silica used as a particularly effective heat stabilizer for addition-crosslinking two component silicone rubber materials. The stabilizer can be incorporated into the silicone rubber materials easily, and is said to lead neither to colorations nor to opacity of the silicone rubber. In Barthel's Examples,

hexamethyldisilazane is used. Since hexamethyldisilazane has no vinyl group, the resulting silica does not have vinyl groups at the surface. The use of such surface-treated silica having no vinyl groups corresponds to Comparative Example 1 in the present specification.

Moreover, Barthel fails to disclose or suggest incorporation of the silica into curable fluoropolyether rubber compositions. Accordingly, it would not be expect from Barthel that cured fluoropolyether rubbers products having improved compression set as well as water repellency, oil repellency, solvent resistance, chemical resistance, and weather resistance can be obtained when a specific surface-treated silica having specific vinyl group content is blended into a curable fluoropolyether rubber composition.

Since neither Barthel nor Tarumi discloses or suggests a significant feature of the present invention, the present invention is manifestly not rendered *prima facie* obvious by the combination of Barthel with Tarumi.

Conclusion

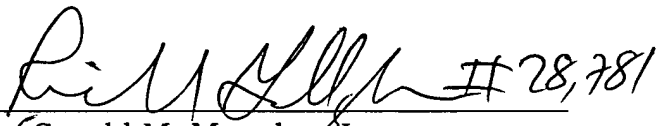
If the Examiner has any questions concerning this application, he is requested to contact Richard Gallagher, Reg. No. 28,781, at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit

Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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